CyberComm Pro 2.2.3

Data Acquisition Software
Installation & User Guide

pH 1100 and pH 2100

Bench pH and Bench pH/Ion Meter

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PREFACE

Thank you for selecting the Eutech Instruments / Oakton Instruments pH 1100/ pH 2100 benchtop meter. This meter comes with the CyberComm Pro DAS Software which allows you easy access and communication via a computer with connection to the meter.

The instruction manual serves to explain the use of the CyberComm Pro step-by-step installation and user guide to help you familiarize with the software's features and functions. It is structured sequentially with illustration of active software screens and diagrams that explains the various functions and menus available.

This manual is written to cover as many anticipated applications and uses of the CyberComm Pro software along with pH 1100/ 2100 Bench meters only. If there are doubts in the use of the software, please do not hesitate to contact Eutech Technical Support at techsupport@eutechinst.com or call us at (65) 6778-6876 for assistance.

CyberComm Pro software is FREE for all customers who have purchased our bench meters. Please download the latest CyberComm Pro version via our website at www.eutechinst.com/cybercomm-software.htm

Eutech Instruments/ Oakton Instruments reserves the rights to change, make improvement and modify specifications without prior notice and cannot accept any responsibility for damage or malfunction to the instrument caused by improper use.

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1   DATA ACQUISITION IN WINDOWS VERSION

1.1   The CyberComm DAS Package

The CyberComm Data Acquisition Software (DAS) package is a user-friendly data acquisition package that provides a convenient way to capture data for future analysis. This CyberComm Pro is only able to run on Windows$^{\copyright}$ Operating System (refer to 1.2 System Requirements for details). Communication between your meter and PC is bi-directional as the meter functions can be remotely controlled by the DAS. Data type stored is in the ASCII format.

$^{\copyright}$ *Windows is the registered trademark of Microsoft Corporation*

1.2   System Requirements

To run the CyberComm Pro DAS software, the following items are required:

1	IBM Compatible PC Pentium and above
2	Windows Operating Systems 95 and above
3	VGA/SVGA Monitor
4	RS232C Serial Communication Cable

1.2.1   Setting the Communication Parameters

The meter is capable of different communication configurations for baud rate, parity and stop bits. The values chosen for these parameters of the meter must match those chosen for the computer, same goes for the serial printer if it is connected.

2   INSTALLATION OF CYBERCOMM DATA ACQUISITION SOFTWARE (DAS)

2.1   Loading of CD-ROM

See **Figure 1**.

Before running the program, check that the pH 1100/ pH 2100 meter is properly connected to the computer. It is preferable to connect to either one of the COM (serial) ports available on a computer. Note the number of the COM port that you have connected to the meter as this will be required in setting up the CyberComm DAS later.

a)   Turn on the computer (PC).

b)   Insert the CD-ROM provided into a CD-ROM drive of your PC.

c)   To install the DAS, use the *My Computer* to view the file contents in your CD_ROM drive. Locate and click onto the **SETUP** file under the CyberComm directory. Double-click again on this file and the program automatically starts installation. Alternatively you can use the Add/Remove Programs feature in Control Panel to install the CyberComm and follow the instruction accordingly. If in doubt, please refer to your Microsoft Operating Manual for further details.
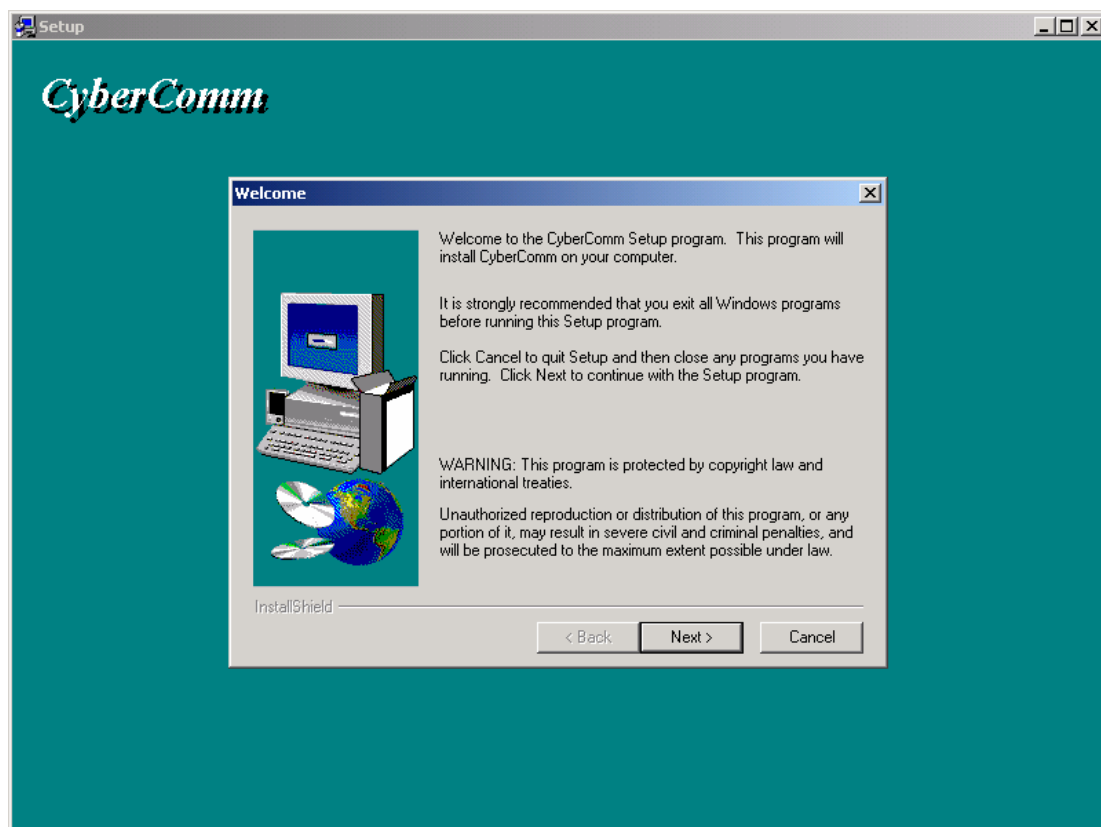

Figure 1: CyberComm Pro Installation/ Welcome Screen

2.2   User Name and Organisation Entry

The CyberComm program (as below) prompts you to enter the name of the user and organization.
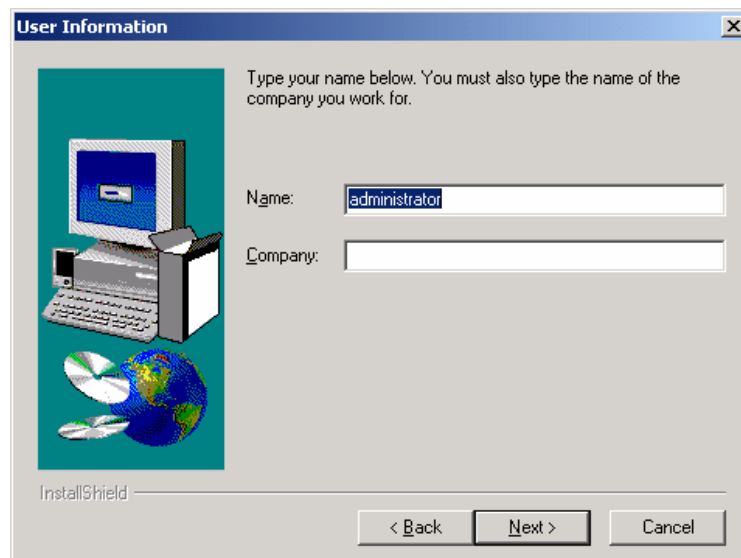
Figure 2: CyberComm Pro Installation/ User Information

See **Figure 2**.
Follow the instruction in the subsequent menu for your desired location of this file to be saved. Make relevant changes until the setup is completed (shown below). Click on the *Finish* button.

Figure 3: CyberComm Pro Installation/ Setup Complete

See **Figure 3**.
 "Launch the program file" if you wish to use it instantaneously. Note: The file is now stored in your designated hard-disk location. Create a shortcut of this file later if you wish.

2.3   Splash Screen

See **Figure 4**.
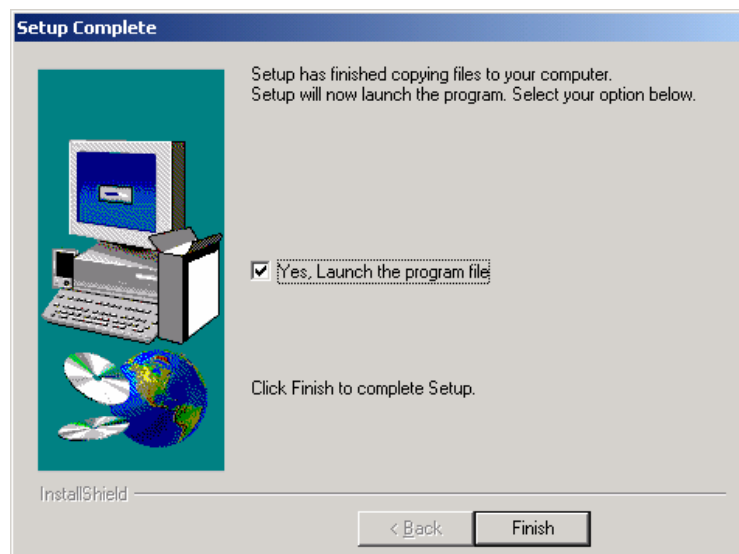Upon clicking the Finish button, a splash screen pops up (shown below).   The meter's communication protocol setting i.e. baud rate, parity and stop bits must be properly set before you power the meter on. DO NOT press any key on the meter while the program is running.

Go to the URL stated to download the latest FREE version of the CyberComm Pro software.

Figure 4: Start up Menu

Click **OK** to go to the following CyberComm Pro Main Menu.

3 CYBERCOMM PRO MAIN MENU

Figure 5: CyberComm Main Menu

See **Figure 5**. Select Communications Settings and set the appropriate requirements before connecting the meter.

3.1 Communication Settings (File)

See **Figure 6**.
To make changes, use the drop-down menu of each parameter to set to desired values to match the meter's settings. After selecting proper communication parameters, select *OK* button to proceed. Otherwise click *CANCEL* if no change is made. To restore to factory default settings, click onto the *Restore Defaults*.

Figure 6: Communications Settings
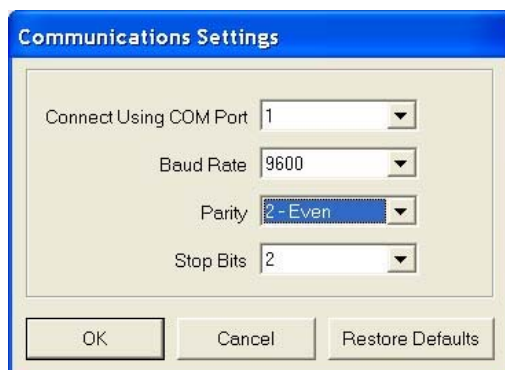
a) *Connect Using*
   Select preferred connection port from the drop down menu; *1* or *2.*

b) *Baud Rate*
   Select preferred baud rate from the drop down menu. *4800*, *9600, 19200 and 38400.*

c) *Parity*
   Select preferred parity from the drop down menu: *None (0), Odd (1)* or *Even (2).*

d) *Stop Bits*
   Select preferred Stop Bits from the drop down menu; *1 or* **2**.

3.2   Data Log Options (File)

See **Figure 7**.

a) *Time between successive readings (1-3600 sec)*. Default is *10* sec.
    Select the time lag preferred between each successful reading using the arrow keys.

b) *Length of Time to Capture Data*. Default is *0* min. (0= indefinitely, units = min)
    Select the total length of time preferred to capture data using the arrow keys.
    The data capture will automatically stop upon reaching the set amount of time.

    Maximum default time is **10080 minutes (1 week)**.

Data Log Options

Time between successive
readings (1-3600 sec)   10   sec

Length of Time to Capture   0   min
Data

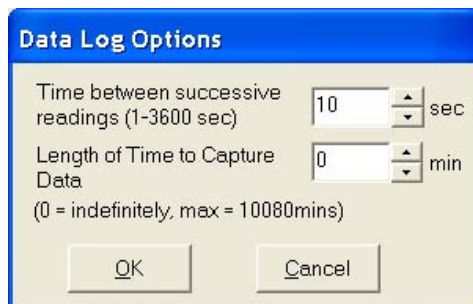(0 = indefinitely, max = 10080mins)

OK   Cancel

Figure 7: Data Log Options

Click *OK* to exit and save settings. The screen will return to the Main Menu (Figure 5).

After matching the Communication Settings and setting the Data Log Options between your computer and the pH 1100/ pH 2100 meter using CyberComm Pro, you can now capture data into your computer for analysis and storage purposes.

3.3   Connect to Meter (File)

See **Figure 10**.

From the Main Menu, select **Connect to Meter** to start the link between your computer and the meter. The complete main window the CyberComm Pro will start after connection to the meter:

4   MAIN WINDOW (AFTER CONNECTING METER TO COMPUTER)

4.1   CyberComm Pro Manuals (Help)

See **Figure 8 and 9**.
The main menu appears with the *File* and *Help* drop down menus, each having a list function settings shown below. Soft copies of the CyberComm Pro Software User Guide Manuals are available in the program itself. Select the manual option with reference to the meter you are using.
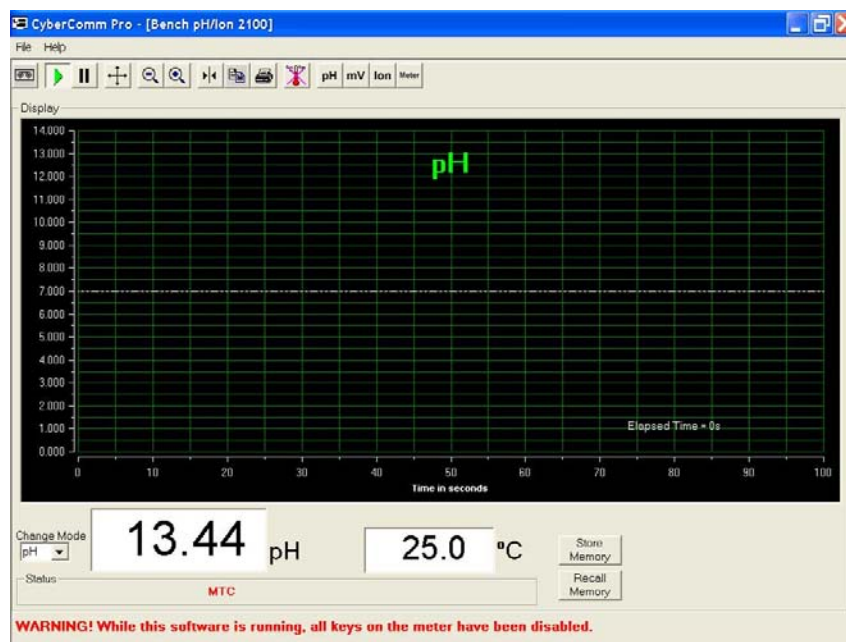

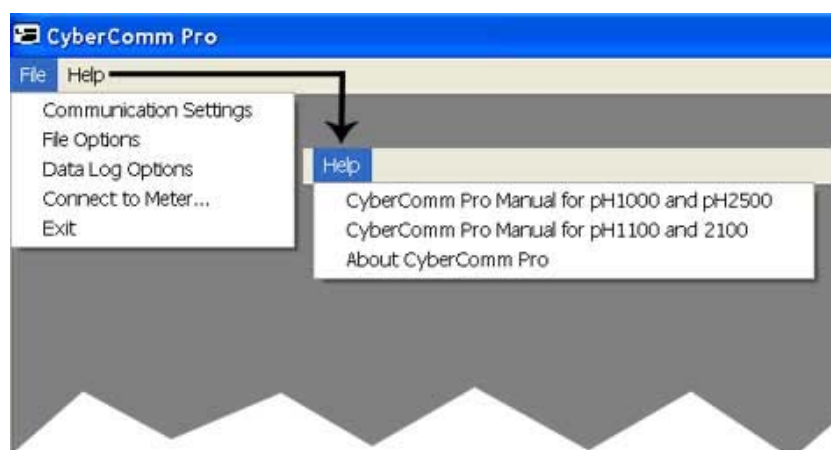**Figure 8**: Running CyberComm Pro/ Complete Main Menu (Connected to meter)

Figure 9: CyberComm Pro Main Menu (Partial)

4.1.1   File Options (File)

See **Figure 10**.

Select File Options from the *File* drop down menu. Enter the relevant information for useful future references and type a file name/or file location that you wish to store these details. Click *OK* upon completion to save information.
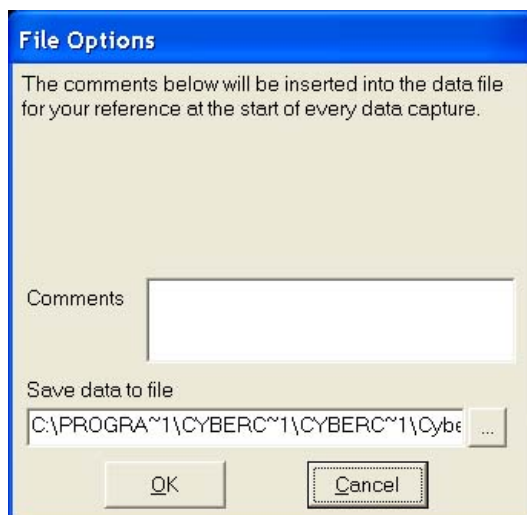

Figure 10: File Options

4.1.2   About CyberComm Pro (Help)

See **Figure 6**.

By selecting *About CyberComm Pro* from the *Help* drop down menu, the dialogue box will be shown as below. It tells you the version of the CyberComm Pro Program you are using. Select *OK* button to exit.

Figure 11: About CyberComm Pro

4.2   Sub menus & Function Icons on the CyberComm Program

See **Figure 12**.

The figure shows the CyberComm Pro software Main Menu after linking with the meter. From this menu, most of the meter key functions can be emulated except calibration of pH probe and CAL EDIT key function. This Sub Menu has following features:

4.2.1 Function Icons
Various Icons for functions just one click away.

4.2.2 Measurement Mode
Indicates the unit of the current mode of measurement.

4.2.3 Show Cursor
Green guide line with point readings.

4.2.4 Information

4.2.7 Mode Drop down Menu
Drop down menu for mode changing.
Ion mode: available in pH 2100 only.

4.2.8 Store and Recall
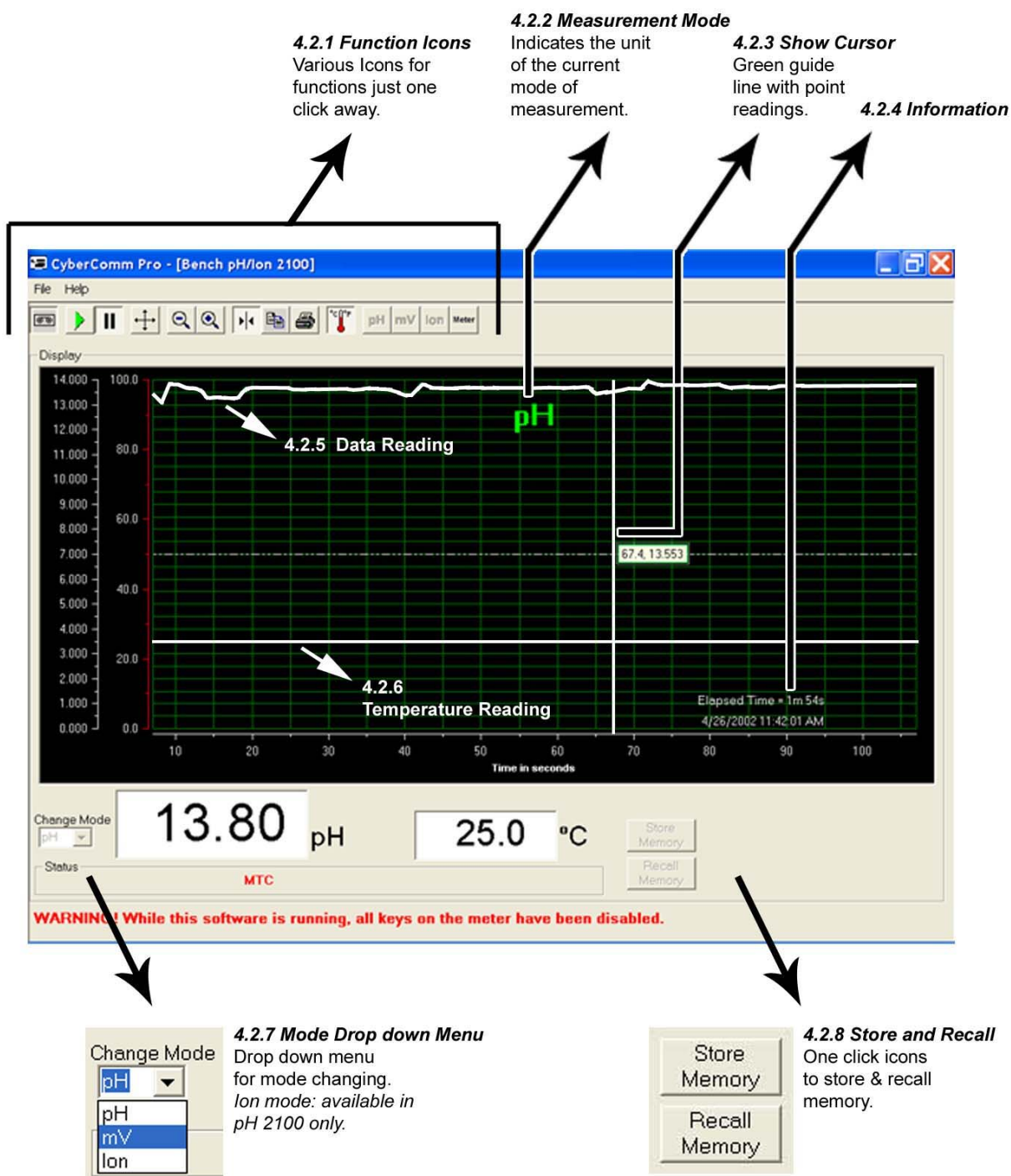One click icons to store & recall memory.

Figure 12: Running CyberComm Pro/ Complete Main Menu (Connected to meter)

4.3   Function Icons

See **Figure 13**. See also **Figure 12**.
The function icons on the main menu each serve a vital role in the CyberComm Pro software, providing user friendly one click access.

Figure 13: Function Icon Panel (extracted from Figure 11)

| Icon no.	Function Name	Description
1	Record	Click on this icon to start recording meter readings, readings will be shown on the CyberComm Pro main menu. Data captured will also be stored to the hard disk. A pop-up menu will prompt you whether to overwrite saved data should you already have recorded data reading. New data should be saved under another file name. **See Figure 14.**
2	Resume Tracking	Works together with the 'Pause Tracking' icon. Click on either to *Resume* or *Pause* the meter tracking. Tracking means that the current reading is always visible and the graph window will scroll to show the current reading like a chart recorder.
3	Pause Tracking	Refer to Icon 2.
4	Scroll/Zoom	Use this function to drag along single axis at a time to expand selected region of the reading curve
5	Zoom Out	Click to enlarge screen image
6	Zoom In	Click to minimise screen image.
7	Show Cursor	Shows a green guide line on the graph. You are able to drag the guide across the readings to get the exact or extrapolated readings at any point on the curve.
8	Copy to clipboard	Copy the entire graph to the clipboard. You can then paste it to other applications.
9	Print	A print screen will pop up and the graph will become black and white in colour for a print preview of your readings. **See Figure 15.**
10	Show/Hide Temperature	Choose to view your readings with or without the temperature curve by clicking this icon.
11, 12, 13, 14	pH, mV, Ion and Meter Settings	Parameter Settings. See **Figures 16-19** for details.
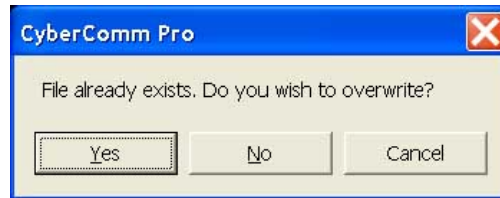
Figure 14: Record overwrite prompt
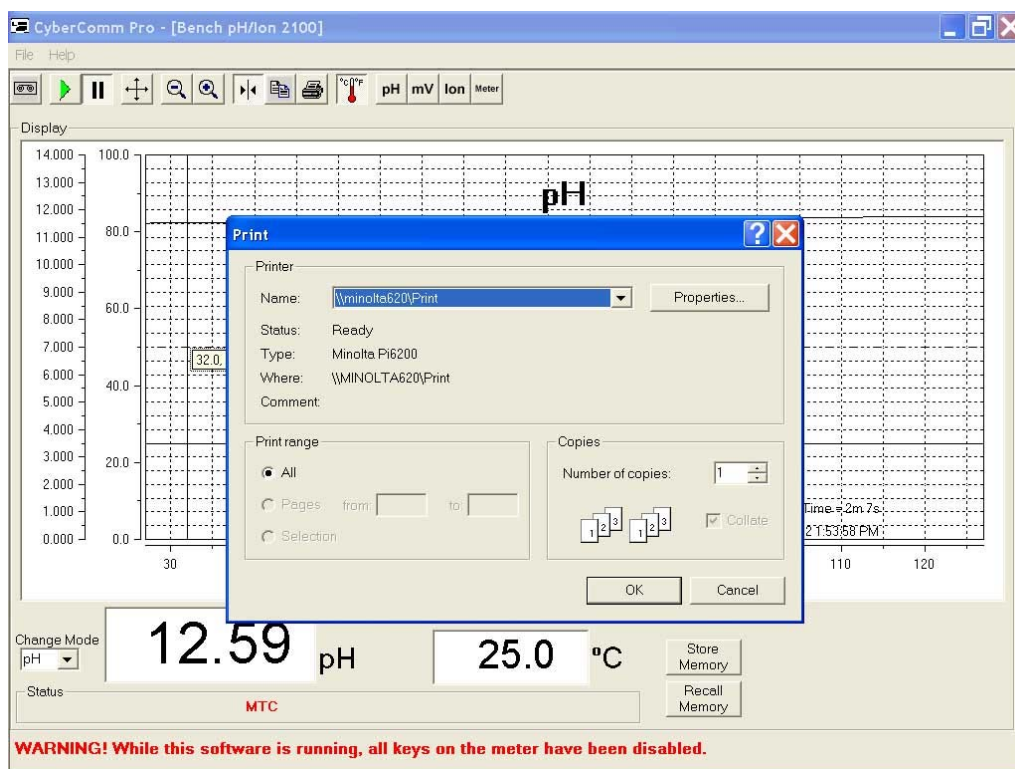
Figure 15- Print screen

Stability definitions

High stability:
reading is stabilized quickly, but reading is less accurate.
Medium stability:
reading stability is averaged between high and low stability.
Low stability:
reading is stabilized slowly, but guarantees high accuracy

Icon 11. pH Settings

See **Figure 16**.

a) pH Resolution
    Select the accuracy of your readings by selecting either 0.001 pH
    resolution or 0.01 pH resolution.

b) Temperature Scale
    Select **°C** or **°F**.

c) pH Alarm Limits
    Using the **Low** and **High** options, select the 'safe' range of
    readings. Any readings not within the selected range will trigger
    the alarm alert.

d) pH Calibration Due
    Check to enable the calibration due warning or uncheck to disable
    it. Calibration due period can be set from **1 to 365** *days* to remind
    you of the calibration due

e) pH Stability
    Check the box to enable pH Stability Indicator; indicator is
    disabled when box is unchecked. Select from **Low, Medium** to
    High to get the preferred level of stability in readings respectively.
    (**Low** for low stability in readings, **Medium** for medium stability

    and **High** for high stability in readings)

f) Reset pH Calibration Setting
    Check box & click apply to reset pH calibration settings

Click on *OK* or **Apply** to save settings whenever there are changes.

Figure 16: pH Settings

Icon 12. mV Settings

See **Figure 17**.

a) mV Alarm Settings
    Using the **Low** and **High** options, select the 'safe' range of
    readings. Any readings not within the selected range will trigger the
    alarm alert.

b) mV Calibration Due
    Check to enable the calibration due warning or uncheck to disable
it.
    Calibration due period can be set from **1 to 365** *days* to remind you
    of the calibration due.

c) mV Stability
    Check the box to enable mV Stability Indicator; indicator is
    disabled when box is unchecked. Select from **Low, Medium** to
    High to get the preferred level of stability in readings respectively.
    (**Low** for low stability in readings, **Medium** for medium stability and
    High for high stability in readings)

d) Reset mV Calibration Settings
    Check box & click apply to reset mV calibration settings.

Click on **OK** or **Apply** to save settings whenever there are changes.

F**igure 17**: mV Settings

Icon 13. Ion Settings (Only applicable for pH 2100)

See **Figure 18**.

a) Ion Settings
    Select Ion Mode from the drop down menu;
    Ppm, ppt, mg/l, g/l, mmol/l or ***mol/l***

b) Ion Resolution
    Select ***High*** or ***Low*** ion resolution mode. Select ***High*** when
    electrode output is ±500 mV value, ***Low*** when electrode output is
    ±1850 mV value.

c) Ion Alarm Limit
    Using the ***Low*** and ***High*** options, select the 'safe' range of
    readings. Any readings not within the selected range will trigger the
    alarm alert.

d) Ion Calibration Due
    Check to enable the calibration due warning or uncheck to disable
    it
    Calibration due period can be set from ***1 to 365*** *days* to remind you
    of the calibration due.

e) Ion Stability
    Check the box to enable Ion Stability Indicator; indicator is disabled
    when box is unchecked. Select from ***Low, Medium*** to ***High*** to get
    the preferred level of stability in readings respectively. (***Low*** for low
    stability in readings, ***Medium*** for medium stability and ***High*** for high
    stability in readings)

f) Reset Ion Calibration Settings
    Check box & click apply to reset Ion calibration settings.

Click on ***OK*** or ***Apply*** to save settings whenever there are changes.

Figure 18: Ion Settings

Icon 14. Meter Settings

See **Figure 19**.
Program your meter functions via this icon on CyberComm Program.

a) Date and Time
   Click on the textbox then a calendar will appear for
   you to set the date.

b) Backlighting
   Enable or disable the backlight and choose the *On*
   period from *0 to 10* minutes.

c) Data Log
   Select *Manual* for self recording of the readings at
   different times or choose to have *Auto* Data logging at
   the preferred interval timing.

d) Memory Recall
   Select *Manual* or *Auto.*

e) Memory Clear
   Select *Yes* or *No.*

f) Data Transfer Mode
   Select *Current* or *Memory.*

Figure 19: Meter Settings

g) Reset all meter settings to meter default
   Check box & click apply to reset Meter calibration settings.

h) Good Laboratory Practice Settings
   Enter the relevant information for useful future references.

Click on *OK* or *Apply* to save settings whenever there are changes.

Continue from Section 4.3

Refer back to **Figure 12** on pg 13.

4.3.1   Measurement Mode
This indicates the current mode of measurement of the meter, you can change the mode by selecting from the drop down menu to choose between the various parameters; pH, mV and Ion. *(Ion mode: available in pH 2100 only)*

4.3.2   Show Cursor
Use the 'Show cursor' function from the icon panel and a green guide line will show any point on the reading curve having the exact measurement according to the mode chosen. Drag this guide along the horizontal time axis and you can read the pH, mV or concentration values at any point in time.

4.3.3   Information
This information will always be on the graph, showing the Elapsed Time of the measurement being carried out, the date and time which marks the start of the first data captured.

4.3.4   Data Reading
The data captured from the meter is plotted on the graph while the measurement is being carried out.

4.3.5   Temperature Reading

This curve shows the temperature in which the measurement is carried out simultaneously. You can choose to view the reading with or without the temperature curve by clicking on the 'Show/Hide Temperature' icon on the icon panel.

4.3.6   Mode Drop down Menu

Change Mode of Measurement by selecting the preferred parameter from this drop down menu.

4.3.7   Store and Recall

a)   Store Memory

The two large icons enable you to store the reading during any point during the measurement. You may want to store one reading at different times, under different mode. (E.g.: a *pH* reading then subsequently a *mV* or *Ion* reading)

b)   Recall Memory

See **Figure 20**.
The 'recall memory' icon then enables you to see the readings that you stored in a pop up box.
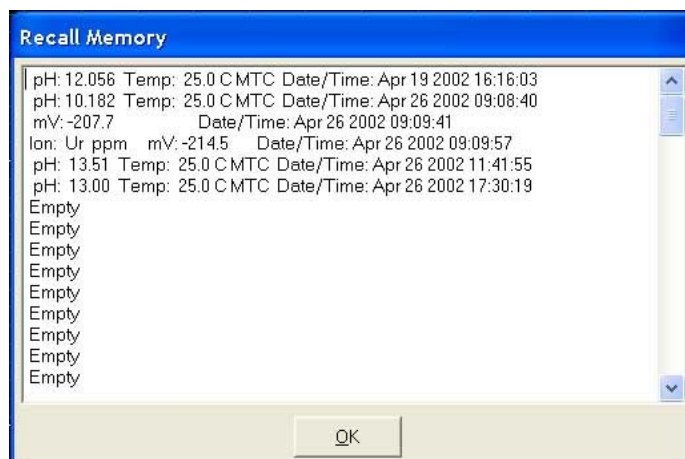
Figure 20: Recall Memory/ Recorded Readings and Information

4.4   To quit CyberComm Program

See **Figure 21**.
Choose *Exit* from drop down menu of *File* or Click the 'X' button on the top right hand corner of the window.
A pop-up menu will prompt you to save settings; select *Yes* if you want the settings you set to be available for next usage.
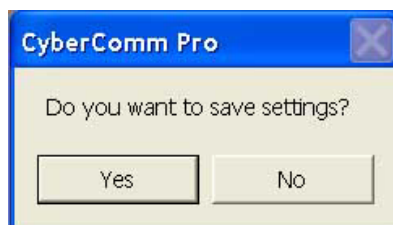

Figure 21: CyberComm Pro/ Exit Screen with options to save settings

5   IMPORT DATA READINGS INTO MICROSOFT EXCEL©

You are able to view the Data Readings in a Microsoft Excel© spreadsheet.

5.1   Steps to import data readings from a Microsoft Excel ©worksheet:

In Microsoft Excel,

1. Go to File menu
2. Select Open
3. Select Program Files folder from the hard disk drive
4. Select CyberComm folder
5. Select CyberComm Pro
6. Select the ".dat" file which you have saved your data readings
7. Double click on the selected ".dat" file

NOTE: The 'Files of Type' should be selected at 'All Files (*.*)'.
See **Figure 22**.
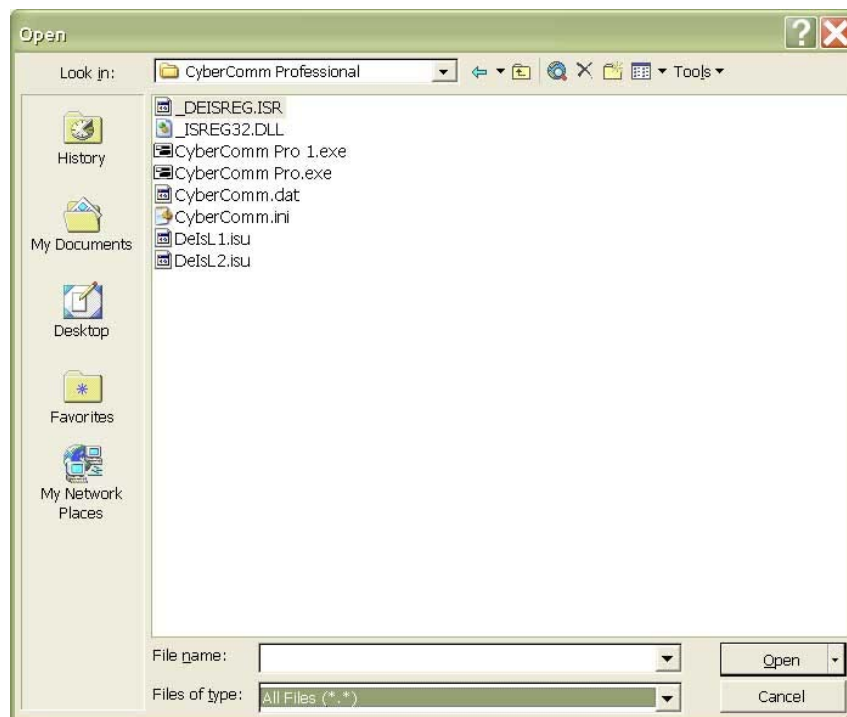
Figure 22: Excel- File Open

5.2   Text Import Wizard- Step 1 of 3

Once you open a ".dat" file from the CyberComm folder, a screen will appear. See **Figure 23**.

Fields

Delimited/ Fixed width
Default: 'Delimited'
Select between delimited and fixed width for the preferred output layout of the file.

Start import at row
Default = '1'
Select the row of data to start importing into the Microsoft Excel © worksheet
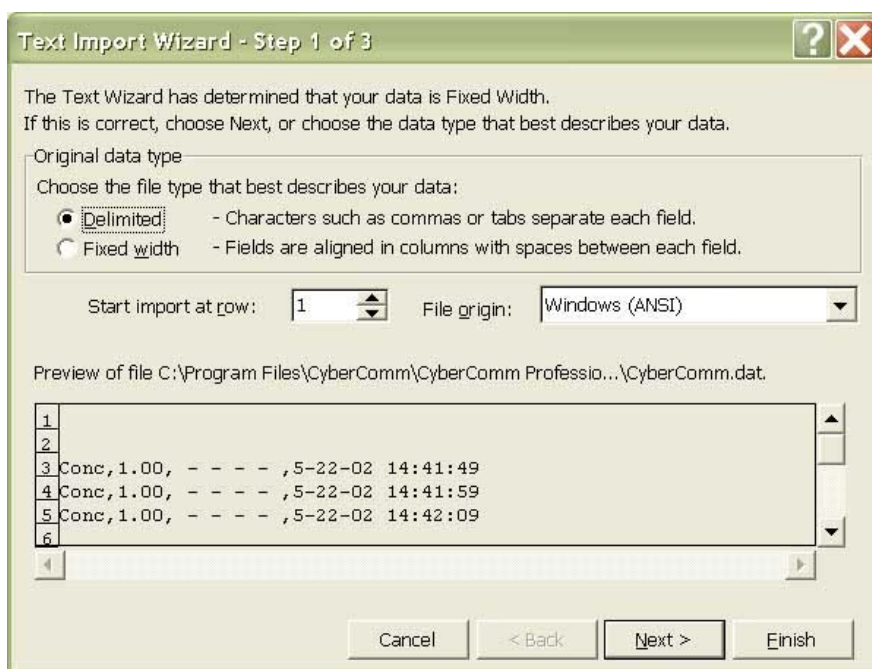
File Origin:
Default: 'Windows (ANSI)'

Figure 23: Step 1 of 3

5.3   Text Import Wizard- Step 2 of 3

See Figure 24.

Fields

Delimiters
Default: 'Tab'
Select '**Comma'**

Treat consecutive delimiters as one
Default: 'Unchecked'

Text qualifier
Default: '*'

Figure 24: Step 2 of 3

5.4   Text Import Wizard- Step 3 of 3

See **Figure 25**.

Fields
Column data format
Default: 'General'

Advanced Text Import Wizard
See **Figure 26**.

Fields
Decimal Separator
Default: '.'

Thousands Separator
Default: ','
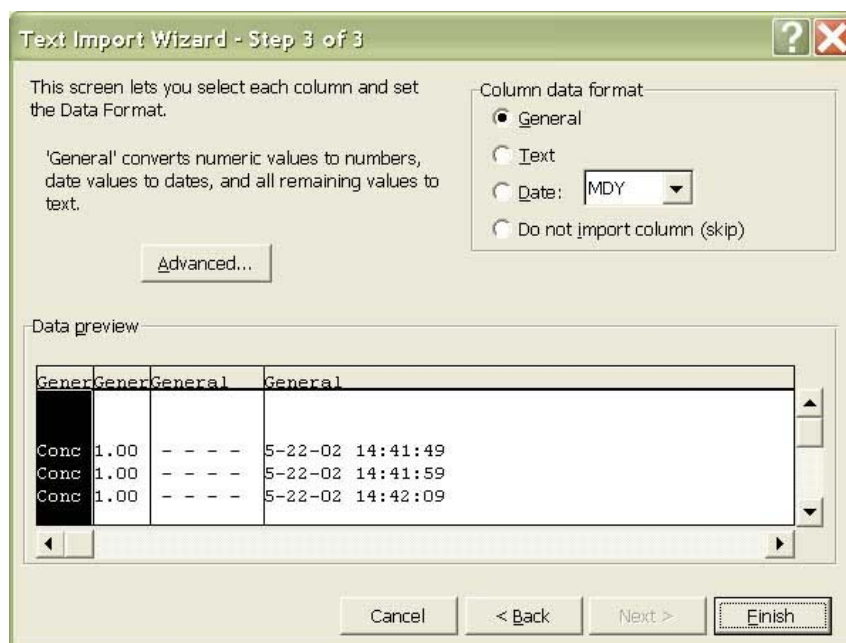
Click **OK** to confirm and exit.
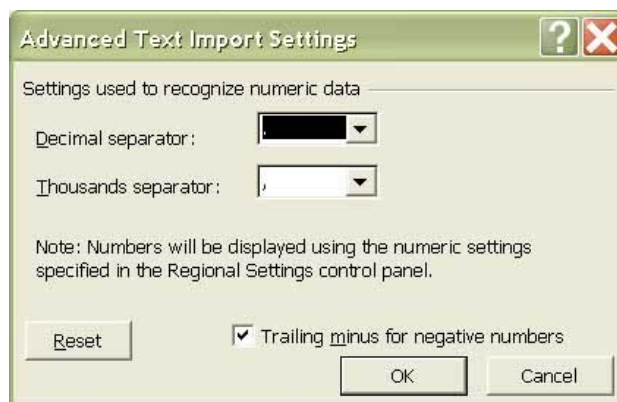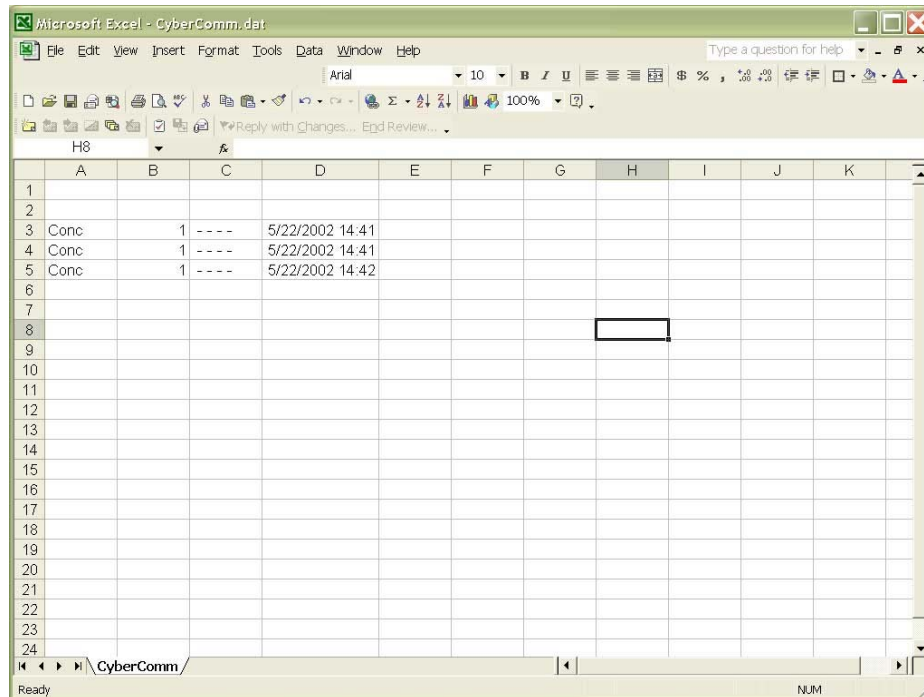

Figure 25: Step 3 of 3

Figure 26: Advanced Text Import Settings

Click **Finish** to end the Text Import Wizard.

Figure below shows CyberComm data presented on a Microsoft Excel $^{©}$ worksheet. See **Figure 27**.

Figure 27: Excel Worksheet with imported ".dat" data

6   PRINT READINGS

6.1   Printing using a serial printer

Connect the pH 1100/ 2100 meter to the serial printer via RS232C cable (refer to the list of accessories). The configuration of the RS232C port is as shown below.

Pin Number	Description
1	-
2	Transmit Data
3	Receive Data
4	DSR (Data Send Ready)
5	GND (Ground)
6	-
7	-
8	RTS (Request to Send)
9	-

6.2   Setting Up the Printer

If the printer has a 25-pin connector, a 25-pin to 9-pin converter will have to be used. Use the following configuration:

Pin of Meter	Pin Number of Printer
2 (TXD)	3 (RXD)
4 (DSR)	20 (DTR)
5 (GND)	7 (GND)

6.3   Connecting the Cable to the Computer

a) If the computer has a 9-pin connector, insert the cable (EC-CA01M09F09) provided into the socket of the computer, taking note of the gender of the two connectors.

b) If the computer has a 25-pin connector, use a 9-pin to 25-pin, male/ female converter with 9 pins and 25 holes for connection. This converter can be obtained from any computer store.

NOTES:

For more information on Eutech Instruments/ Oakton Instruments products, contact your nearest distributor or visit our website listed below:

Eutech Instruments Pte Ltd. Blk 55, Ayer Rajah Crescent, #04-16/24 Singapore 139949 Tel: (65) 6778 6876 Fax: (65) 6773 0863 E-mail: marketing@eutechinst.com Web-site: http://www.eutechinst.com	**Oakton Instruments** P.O Box 5136, Vernon Hills, IL60061, USA Tel: Toll free 1-888-4OAKTON (1-888-462-5866) Fax: (1) 847-247-2984 Email: info@4oakton.com Website: www.4oakton.com	DISTRIBUTED BY: